CLAIMS

I claim:

1. A surveillance system comprising:

a video surveillance system that identifies a visual-object based on image information provided by one or more camera,

an RF surveillance system that identifies an RF-object based on reception information provided by a plurality of receivers, and

an object linker, operably coupled to the video surveillance system and the RF surveillance system, that is configured to link the visual-object to the RF-object.

2. The surveillance system of claim 1, wherein

the video surveillance system is configured to determine a first location coordinate corresponding to the visual-object, and

the RF surveillance system is configured to determine a second location coordinate corresponding to the RF-object, and

the surveillance system further includes:

a calibration module, operably coupled to the video surveillance system and the RF surveillance system that is configured to facilitate a reduction in a difference between the first location coordinate and the second location coordinate.

3. The surveillance system of claim 2, wherein

the RF surveillance system determines the second location coordinate based on a time-of-arrival parameter provided by each of the plurality of receivers, and

the calibration module is configured to provide an adjustment to the time-of-arrival parameter from one or more of the plurality of receivers.

4. The surveillance system of claim 3, wherein

the RF surveillance system determines the second location coordinate based on a predefined location of each of the plurality of receivers, and

the calibration module is configured to provide an adjustment to the predefined location of one or more of the plurality of receivers.

5. The surveillance system of claim 2, wherein

the RF surveillance system determines the second location coordinate based on a predefined location of each of the plurality of receivers, and

the calibration module is configured to provide an adjustment to the predefined location of one or more of the plurality of receivers.

6. The surveillance system of claim 2, wherein

the RF surveillance system determines the second location coordinate based on trajectory parameters associated with the RF-object, and

the calibration module is configured to provide an adjustment to one or more of the trajectory parameters.

7. The surveillance system of claim 6, wherein

the trajectory parameters include a latency parameter that corresponds to a delay associated with processing the receipt information to provide the second location coordinate.

8. The surveillance system of claim 2, wherein

the calibration module is configured to provide one or more adjustment parameters that facilitate the reduction of the difference based on a calibration of the surveillance system that includes placement of a plurality of RF-objects at visibly identifiable locations.

9. The surveillance system of claim 2, wherein

the calibration module is configured to provide one or more adjustment parameters that facilitate the reduction of the difference based on a calibration of the surveillance system that includes placement of a plurality of RF-objects upon movable visibly identifiable objects.

10. The surveillance system of claim 2, wherein

the calibration module is configured to facilitate a determination of the first location coordinate from the video surveillance system based on the second location coordinate, when the visual-object is occluded from view of the one or more cameras.

11. A method of calibrating an RF location determination system in a surveillance area, comprising:

attaching an RFID tag to a visually identifiable object,

determining a first location coordinate of the object based on an appearance of the object in a scene provided by a video camera,

obtaining reception information from a plurality of receivers in response to a transmission from the RFID tag,

determining a second location coordinate of the object based on the reception information from the plurality of receivers,

determining one or more adjustment parameters that facilitates a reduction in a difference between the first and second location coordinates of the object.

12. The method of claim 11, further including:

determining a correspondence between the appearance of the object and the reception information to link the visually identifiable object to the RFID tag.

13. The method of claim 11, wherein

at least one of the one or more adjustment parameters is configured to be applied to the second location coordinate.

14. The method of claim 11, wherein

the reception information includes a time-of-arrival parameter provided by each of the plurality of receivers, and

at least one of the one or more adjustment parameters is configured to be applied to the time-of-arrival parameter of at least one of the plurality of receivers.

15. The method of claim 11, wherein

determining the second location coordinate is also based on a defined location of each of the plurality of receivers, and

at least one of the one or more adjustment parameters is configured to be applied to the defined location of at least one of the plurality of receivers.

16. The method of claim 11, wherein

at least one of the one or more adjustment parameters is configured to provide a correspondence in time of the first location coordinate and the second location coordinate.

17. The method of claim 11, further including:

moving the object through the surveillance area,

determining a plurality of video location coordinates and a plurality of RF location coordinates of the object, and

determining trajectory adjustment parameters to be applied to subsequent location determinations, based on differences between the plurality of video location coordinates and the plurality of RF location coordinates of the object.

18. The method of claim 11, further including

activating multiple other RF transmitters concurrently with the transmission from the RFID tag,

determining congestion adjustment parameters to be applied to subsequent reception information from at least one of the plurality of receivers, based on a difference between the first and second location coordinates of the object.

19. A method of determining a location coordinate of an RF transmitter, comprising:

receiving a signal from the RF transmitter at a plurality of receivers, and

determining the location coordinate of the RF transmitter based on reception information from the plurality of receivers and based on adjustment parameters,

wherein:

the adjustment parameters are based on one or more differences between first location determinations and second location determination of a target transmitter,

the first location determinations are based on visual images of the target transmitter, and

the second location determinations are based on prior reception information from the plurality of receivers corresponding to transmissions from the target transmitter.

20. The method of claim 19, wherein

the reception information includes a time-of-arrival parameter provided by each of the plurality of receivers, and

at least one of the adjustment parameters is configured to be applied to the time-of-arrival parameter of at least one of the plurality of receivers.

21. The method of claim 19, wherein

determining the location coordinate is also based on a defined location of each of the plurality of receivers, and

at least one of the adjustment parameters is configured to be applied to the defined location of at least one of the plurality of receivers.

22. The method of claim 19, further including

displaying an image of an object that includes the RF transmitter, and

wherein

at least one of the adjustment parameters is configured to provide a correspondence in time between receiving the signal from the RF transmitter and displaying the image of the object that includes the RF transmitter.

23. The method of claim 19, wherein

at least one of the adjustment parameters is dependent upon a speed of motion of the RF transmitter.

24. The method of claim 19, further including

receiving other signals from a number of other RF transmitters,

wherein

at least one of the adjustment parameters is dependent upon the number of other RF transmitters.

25. The method of claim 19, further including

determining an area of uncertainty associated with the location determination, based on variance parameters,

wherein

the variance parameters are also based on the one or more differences between the first location determinations and the second location determination of the target transmitter.

26. The method of claim 25, wherein

at least one of the variance parameters is dependent upon a speed of motion of the RF transmitter.

27. The method of claim 25, further including

receiving other signals from a number of other RF transmitters,

wherein

at least one of the variance parameters is dependent upon the number of other RF transmitters.

28. The method of claim 25, wherein

at least one of the variance parameters is dependent upon a strength of the signal from the RF transmitter at each of the plurality of receivers.